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HEWLETT-PACKARD COMPANY
Intellectual Property Administration
P.O. Box 272400
Fort Collins, CO 80527-2400

EXAMINER	
HUSSAIN, TAUQIR	

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2152	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

suppl.

Office Action Summary

Application No.	Applicant(s)	
10/677,584	BECK ET AL.	
Examiner	**Art Unit**	
Tauqir Hussain	~~2196~~ 2152	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10/02/2003*.

2a)☐ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) *8-24 and 34-47* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) *8-24,34-47* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
   Paper No(s)/Mail Date *10/02/2003*.
4) ☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 8-24 and 34- 47 are pending in this application.

2. This office action replaces any previous office action mailed earlier, in response to Applicant's inquiry regarding preliminary amendment on 04/04/2007.

Claim Objections

3. Claim 34, is objected to because of the following informalities:

4. Claims 34 recites, "client application that issues a data pocket on an address", lines 2-3. Examiner will read it as "client application that issues a data packet on an address" for examining purposes.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 8-10, 13-19, 34-36, 39, 42-44 and 47 are rejected under 35 U.S.C. 102(e) as being anticipated by Chung et al. (Patent No.: US 6470389 B1), hereinafter "Chung".

7. As to claim 8, Chung discloses, in a computer network having a plurality of network routers and a plurality of processor nodes (Col.7, lines 62-67, where 62 and 64 are router and 54 represents the cluster of servers), including associated processor nodes (Col.7, line 66, cluster has a plurality of nodes), a method for arranging a plurality of associated processor nodes in a virtual subnet (Col.2, lines 46-47, where cluster of server itself is a virtual network), the method comprising:

advertising on the computer network, by each of the plurality of associated processor nodes (Fig.5, Col.8, lines 21-25), that the plurality of associated processor nodes comprise a network path to the virtual subnet (Fig.4, Col.8, lines 54-57, where cluster is virtual network and all nodes are connected to network), the plurality of associated processor nodes being free of physical connections to the virtual subnet

(Col.8, lines 57-59, where all the cluster server uses this virtual ghost IP but has no physical connection tied to it);

determining, by the plurality of network routers, a routing path to the virtual subnet (Col.8, lines 59-60, where router looks for related ghost IP), the routing path including the plurality of associated processor nodes (Col.8, lines 59-60, router routes the packet to relative server cluster); and

delivering data packets that include a destination address associated with the virtual subnet (Col.8, lines 60-63), to one of the associated processor nodes via one of the network routers that has a physical connection to the associated processor node (Col.8, lines 62-64, where router and cluster are connected through LAN 56).

8. As to claim 13, Chung discloses, a method for preventing retransmission of data packets issued to a first processor node that has stopped functioning (Col.7, line 8-9), comprising the steps of:

identifying that the first processor node has stopped functioning Col.7, lines 5-9); and

assigning an address, associated with the first processor node, to a second processor node in response to said identification that the first processor node has stopped functioning (Col.7, line 8-9), such that data packets addressed to the first processor node will be redirected to the second processor node (Col.7, lines 5-12).

9. As to claim 34, Chung discloses, a computer system, comprising:

a plurality of processor nodes, associated with a virtual subnet (Col.7, line 66, where cluster is a virtual subnet and within cluster there are more than one servers), each of the processor nodes advertising themselves as a network route to the virtual subnet (Col.7, line 66, where all the server in clusters are interconnected and inherently broadcasting over the network and Col.8, lines 54-56, where all server has tied to single IP which is interpreted as network path), each of the plurality of processor nodes having a virtual connection to the virtual subnet (Fig.2, Col.5, lines 49-52, Col.6, lines 19-22, where broadcasting is advertising and lines 60-61, where cluster is virtual subnet and cluster is made of plurality of nodes);

a plurality of network routers (Col.5, lines 50-51), comprising a network coupled to each of the plurality of processor nodes, each of the network routers developing a map database indicating a network route to the virtual subnet based upon the processor nodes advertising (Col.5, lines 49-51, where router inherently keeps a routing table and periodically updates it) ; and

a plurality of CPUs, a different one included in each node of the plurality of processor nodes, for executing an application that effectuates the advertising by the processor nodes as network routes to the virtual subnet (Fig.2, Col.5, lines 49-50 and Col.6, lines 19-22, where advertising is to give announce the availability based on the status is same as broadcasting which tell the status of the server as if it is functional or non-functional).

10. As to claim 39, Chung discloses, a computer system, comprising:

a plurality of processor nodes, each including a network interface module for connecting to a computer network, the processor nodes being coupled together to form a cluster (Fig.2, block-200, Col.5, lines 60-63);

a first one of the processor nodes executing a cluster management application for monitoring the processor nodes (Col.7, lines 62-63, where dispatcher is the first node loaded with management software) to determine ones of the processor nodes that are non-functioning and for identifying the non-functioning processor nodes to the other processor nodes (Col.7, lines 5-12, where failed server is replaced with non-failed server); and

a second one of the processor nodes allocating an address, associated with at least one of the non-functioning processor nodes, to the associated network interface module (Col.7,lines 5-12).

11. As to claim 43, Chung discloses, computer system, comprising:

a plurality of processor nodes, forming a cluster, each of the processor nodes coupled to a computer network (Col.8, lines 3-5, where LAN is a computer network and cluster is plurality of processor nodes connected to LAN);

a first one of the processor nodes executing a first receiver application for receiving data packets issued across the computer network by a client application (Col.7, lines 64-67) and for configuring a received data packet in a first configuration such that the data packet is serviceable by a first high level application running on the first one of the processor nodes (Col.7, lines 64-67, where dispatcher is the first node and execute the routing table for appropriate routing and passes it to upper layers for further processing if needed);

a second one of the processor nodes servicing data packets, the second one of the processor nodes executing a second receiver application (Col.9, lines 2-11); and

a high speed communications interface for passing packets of information between the plurality of processor nodes forming the cluster (Col.8, lines 65-67), the high speed communications interface (Col.9, lines 11-14, where LAN is a high speed communication interface) receiving the first configuration of the data packet from the first one of the processor nodes and delivering it to the second one of the plurality of processor nodes without changing the configuration (Col.7, lines 64-67, where dispatcher is the first node and execute the routing table for appropriate routing and passes it to upper layers for further processing if needed), such that the data packet is serviced by a high level application running on the second one of the processor nodes (Col.9, lines 14-18, where server 14-2 process the high level application).

12. As to claim 9, Chung discloses, the method for arranging a plurality of associated processor nodes in a virtual subnet, wherein said network router splits the delivery of the plurality of data packets equally among the plurality of associated processor nodes (Col.4, lines 24-28).

13. As to claim 10, Chung discloses, the method for arranging a plurality of associated processor nodes in a virtual subnet, wherein each of the plurality of associated processor nodes is running the Digital UNIX operating system (Col.4, lines 25-27).

14. As to claim 14, Chung discloses, the method for preventing retransmission of data packets issued to a first processor node that has stopped functioning (Col.7, line 8-9), further including the steps of:

in response to said identifying step identifying that the first processor node has stopped functioning, issuing a message, from a cluster management application associated with a cluster to which the first processor node belongs, to a plurality of other processor nodes within that cluster (Col.4, 37-42, where IP addresses in the access log contains the status of servers in the cluster also all servers tied of one virtual IP address against which they respond, therefore servers will know the status of participating servers in the cluster); and

arbitrating, by the plurality of other processor nodes of the cluster, to determine said second processor node that will receive the data packets issued to the first processor node (Col.4, lines 42-44).

15. As to claim 15, Chung discloses, the method for preventing retransmission of data packets issued to a first processor node that has stopped functioning, further including the step of:

assigning, by the second processor node, a network layer address associated with the first processor node to the second processor node such that the data packets issued to the first processor node will be received by the second processor node (Col.4, lines 42-44 and Col.7, lines 5-12).

16. As to claim 16, Chung discloses, the method for preventing retransmission of data packets issued to a first processor node that has stopped functioning (Col.7, line 8-9), further including the step of:

de-assigning, by the second processor node, the network layer address associated with the first processor node after a predetermined amount of time has expired (Col.7, lines 5-12, where dispatcher detects the server failure which is first processor node, dispatcher applies the rehashed function" where one of the hashing element is predetermined time expiration". After rehashing dispatcher reroutes/de-assigns the client connection to the non-failed/second processor node server meaning client has established the connection with the non-failed sever, "second processor node" and future packets will be automatically go to non-failed server because of rehashed entry in dispatcher for this particular client).

17. As to claim 17, Chung discloses, the method for preventing retransmission of data packets issued to a first processor node that has stopped functioning (Col.7, line 8-9), wherein the predetermined period of time is:

a period of time for a network router, coupled to the first and second processor nodes, to identify that the first processor node has stopped functioning (Col.7, lines 5-9, where broadcasting means routed waits for node's reply for certain time and no reply means node has stopped functioning).

18. As to claim 18, Chung discloses, the method for preventing retransmission of data packets issued to a first processor node that has stopped functioning (Col.7, line 8-9), wherein the network router is prevented from sending any data packets to the first processor node after the predetermined period of time has expired (Col.7, lines 5-12,

where dispatcher detects the server failure which is first processor node and dispatcher applies the rehashed function" where one of the hashing element is predetermined time expiration". After rehashing dispatcher reroutes the client connection to the non-failed server).

19. As to claim 19, Chung discloses, the method for preventing retransmission of data packets issued to a first processor node that has stopped functioning (Col.7, line 8-9), wherein the first and second processor nodes are executing the Digital UNIX operating system (Col.4, lines 25-28).

20. As to claim 35, Chung discloses, the computer system, further comprising:

a client processor node, for executing a client application that issues a data packet to an address of a processor node within the virtual subnet (Col.7, lines 39-40, where client sends the data packet to cluster's IP address and cluster is a virtual subnet); and

one network router(Fig.4,Col.7, line 44), of the plurality of network routers, having a physical connection to at least one processor node of the plurality of processor nodes associated with the virtual subnet (Fig.4, Col.7, lines 40-45, where dispatcher is connected to LAN-56 which is connected to cluster/virtual network has a processor node as server-1) , the one network router imposing a bit mask on network addresses to form respective subnet addresses (Col.7, lines 64-67, where dispatcher applies a hash function to send the packet to correct server within the cluster/virtual subnet).

21. As to claim 36, Chung discloses, the computer system, wherein each of the plurality of processor nodes is running The Digital Unix operating system (Col.4, lines 25-28).

22. As to claim 42, Chung discloses, the computer system, wherein each of the processor nodes is running The Digital Unix operating system (Col.4, lines 25-28).

23. As to claim 44, Chung discloses, the computer system, further comprises first Mbuf data structure for storing the first configuration of the received data packet, said first Mbuf data structure being a queue for providing the received data packet to the first high level application (Col.8, lines 1-7, where "first Mbuf data structure" is the first packet received at dispatcher in first configuration before dispatcher applies the hash function, after the hash function applied it is decided and routed the packet to first high level application server for processing).

24. As to claim 47, Chung discloses, the computer system, wherein each processor node of the plurality of processor nodes is running the Digital Unix operating system (Col.4, lines 25-28).

Claim Rejections - 35 USC § 103

25. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

26. Claim 20-21 and 24, are rejected under 35 U.S.C 103(a) as being unpatentable over Chung in view of Kapoor et al. (Patent Number: 5682534), hereinafter "Kapoor".

27. As to claim 20, Chung discloses, a method for delivering a received data packet from a receiving processor node to a destination processor node (Col.7, lines 63-67), including the steps of:

configuring, by the receiving processor node, the received data packet in a predetermined configuration to form a configured data packet (Col.7, lines 62-63), said configuration being used by an application executing on the receiving processor node (Col.7, lines 62-67 and Col.8, lines 1-3);

issuing said remote procedure such that the configured data packet is delivered to the destination processor node in a manner free of being reconfigured (Col.8, lines 7-11, where node performs the final processing on the packet and sends it back to client).

Chung does not disclose, passing the configured data packet to a remote procedure, said remote procedure for passing data across a high speed communications interface between processor nodes of a cluster. However, Kapoor teaches, passing the configured data packet to a remote procedure, said remote procedure for passing data across a high speed communications interface between processor nodes of a cluster (Col.1, lines 30-40).

Therefore it would have been obvious to one ordinary skilled in the art at the time the invention was made to combine the teachings of Chung with the teachings of Kapoor in order to support the integrity of connection between nodes so data can get transfer without any loss.

28. As to claim 21, Chung and Kapoor disclose the invention substantially as in parent claim 20, including, wherein the configured data packet is stored in an Mbuf data structure, said Mbuf data structure being a queue for providing received data packets to said application enabling said data packets to be serviced by said application (Chung, Col.8, lines 1-7, where "first Mbuf data structure" is the first packet received at dispatcher in first configuration before dispatcher applies the hash function, after hash function applied it is to decide and route the packet to first high level application server for processing).

29. As to claim 24, Chung and Kapoor disclose the invention substantially as in parent claim 21, including, wherein each of the processor nodes of the cluster is running the Digital UNIX operating system (Chung, Col.4, lines 25-28).

30. Claims 22-23, are rejected under 35 U.S.C 103(a) as unpatentable over Chung and Kapoor as applied to claim 20-21 and 24 above in view of Gayman (Patent No.: US 6256673 B1), hereinafter "Gayman".

31. As to claim 22, Chung and Kapoor disclose the invention substantially as in parent claim 21. Chung and Kapoor, are silent on network is based on Gigabit Ethernet interface. However, Gayman teaches, a method, wherein said high-speed communications interface is a Gigabit Ethernet interface (Gayman, Fig.4, Col.5, lines 62-63).

Therefore, it would have been obvious to one ordinary skilled in the art at the time the invention was made to combine the teachings of Chung and Kapoor with the teachings of Gayman in order to transfer big image or database tables on the fly at client's request in a corporate environment.

32. As to claim 23, Chung, Kapoor and Gayman discloses, the invention substantially as in parent claim 21, including, wherein said high-speed communications interface is an ATM interface (Gayman, Fig.4, Col.5, lines 60-61).

33. Claims 11 and 37 are rejected under 35 U.S.C 103(a) as being unpatentable over Chung as applied to claims 8,9, 13-19, 34-36, 39,43-44 and 47 above in view of Tosey et al (Patent Number: 5913921), hereinafter "Tosey".

34. As to claim 11, Chung discloses the invention substantially as in parent claim 8. Chung is silent on using OSPF routing protocol. However, Tosey teaches, using the OSPF IP routing protocol to advertise the network path (Tosey, Col.2, lines 1-3).

Therefore, it would have been obvious to one ordinary skilled in the art at the time the invention was made to combine the teachings of Chung with the teachings of Tosey in order to provide undisruptive service in case of any cluster server failure, to clients where clients are running critical applications off the servers.

35. As to claim 37, Chung discloses the invention substantially as in claim 36, including, the application that effectuates the advertising by the processor nodes as network routes to the virtual subnet (Chung, Col.10, lines 37-39, where broadcasting detects the status of the cluster server within the cluster and where cluster is a virtual subnet). Chung is silent on using OSPF protocol for advertising purpose. However, Tosey teaches, using OSPF protocol in the computer system, wherein the application that effectuates the advertising by the processor nodes as network routes to the virtual subnet implements the OSPF IP routing protocol (Tosey, Col.2, lines 1-3, where advertising means updating the status of nodes over the network, which router records in its routing table).

36. Claim 12 is rejected under 35 U.S.C 103(a) as being unpatentable over Chung in view of Bhaskaran (Patent Number: 5963540), hereinafter “Bhaskaran-540”.

37. As to claim 12, Chung discloses the invention substantially as in claim 8, including, using the ICMP routing protocol to advertise the network path. Chung is silent on using RIP IP for advertising over the network path. However, Bhaskaran teaches using RIP IP protocol to advertise the network path to the virtual subnet (Col.1, lines 55-57, where servers uses RIP IP for broadcasting to detect each other's status).

Therefore, it would have been obvious to one ordinary skilled in the art at the time the invention was made to combine the teachings of Chung with the teachings of Bhaskaran-540 in order to report any failovers with in the cluster to avoid any quality and service issues for end users.

38. Claims 40-41 are rejected under 35 U.S.C 103(a) as being unpatentable over Chung in view of Bhaskaran (Patent No.: US 6266335 B1), hereinafter "Bhaskaran.

39. As to claim 40, Chung discloses the invention substantially as in parent claim 39. However, Chung is silent on that network router queries the non-functioning node for a predetermined period of time. Bhaskaran teaches, at least one network router, coupling the processor nodes to the computer network, each network router continuing to query the non-functioning processor nodes for a predetermined period of time, the predetermined period of time being a routing failover delay (Bhaskaran, Col.8, lines 40-58, where network flow switch keeps monitoring the status of failing server and once the failing server becomes available it detects it, so predetermined time could be the time until non-functional node becomes available).

Therefore, it would have been obvious to one ordinary skilled in the art at the time the invention was made to combine the teachings of Chung with the teachings of Bhaskaran in order to provide enhanced customer service in e-commerce environment.

40. As to claim 41, Chung and Bhaskaran discloses the invention substantially as in parent claim 40, including, the computer system, wherein the second one of the processor nodes de-allocates the address from the associated network interface module after the routing failover delay has expired (Bhaskaran, Col.8, lines 40-58, where explained how primary and secondary servers interchangeable exchange addresses/places in case of any failover among them).

41. Claim 38 is rejected under 35 U.S.C 103(a) as being unpatentable over Chung and Tosey in view of Bhaskaran-540.

42. As to claim 38, Chung and Tosey disclose the invention substantially as in parent claims 34. However, Chung and Tosey are silent on the computer system, using RIP IP to advertise over the network. Bhaskaran-540 teaches, wherein the application that effectuates the advertising by the processor nodes as network routes to the virtual subnet implements the RIP IP routing protocol (Col.1, lines 55-57, where servers uses RIP protocol to advertise their status over the network).

Therefore, it would have been obvious to one ordinary skilled in the art at the time the invention was made to combine the teachings of Chung with teachings of

Bhaskaran-540 in order to provide the clients undisruptive service in case of node failure in server cluster where clients running critical applications off the servers.

43. Claims 45-46 are rejected under 35 U.S.C 103(a) as being unpatentable over Chung in view of Gayman.

44. As to claim 45, Chung discloses the invention substantially as in parent claim 43. However chung is silent on high speed network being Gigabit Ethernet network. Gayman teaches, the computer system, wherein the high speed communications interface is a Gigabit Ethernet interface (Fig.4, Col.5, lines 62-63).

Therefore, it would have been obvious to one ordinary skilled in the art at the time the invention was made to combine the teachings of Chung with the teachings of Gayman in order to transfer big image or database tables on the fly at client's request in corporate environment.

45. As to claim 46, Chung and Gayman disclose the invention substantially as in parent claim 43, including, the computer system, wherein the high-speed communications interface is an ATM interface (Gayman, Fig.4, Col.5, lines 60-61).

Conclusion

1. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

2. Attannasio et al. (Patent Number 5371852), discloses, provides a method and apparatus for enabling a cluster of computers to appear as a single computer to host computers outside the cluster.

3. Colie et al. (Patent No.: US 6317775 B1), discloses, method of distributing connections among a plurality of servers at an internet site.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tauqir Hussain whose telephone number is 571-270-1247. The examiner can normally be reached on 7:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bunjob Jaroenchonwanit can be reached on 571 272 3913. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TH

BUNJOB JAROENCHONWANIT
SUPERVISORY PATENT EXAMINER